III. RISK
(JDPL ISSUES II-1-A; II-1-C; II-2-A; II-2-C)

Q. Does the required rate of return on an investment vary with the risk of that investment?

A. Yes. Since investors are averse to risk, they require a higher rate of return on investments with greater risk.

A. RISK IMPLIED BY THE COMMISSION'S COST STANDARDS

Q. How do this Commission's forward-looking economic cost standards affect the appropriate view of investment risk in the context of UNE models?

A. The Commission has specifically stated that rates for UNEs should "approximate what the incumbent LEC would be able to charge if there were a competitive market for such offerings." CLECs have argued in other UNE proceedings that the expense and investment components of the forward-looking economic cost of providing UNEs will be lower in a fully competitive market environment than in a less competitive market environment. However, they fail to acknowledge that the competitive market environment also has implications for investment risk, and thus the depreciation and cost of capital components of their cost studies. Firms in a fully competitive environment would certainly use shorter depreciation lives than firms in a less competitive environment, and they would certainly face higher costs of capital as well.

Q. What would be the effect of using the competitive market assumption to estimate the expense and investment components, but a monopoly market assumption to estimate the cost of capital?

A. If the Commission assumes the market is fully competitive when determining the expense and investment components in UNE cost models, but not when determining the cost of capital, the resulting forward-looking economic cost studies ***will not replicate*** the results of a competitive market. Indeed, since the resulting forward-looking economic costs would then be less than the costs competitors would face in building their own networks, there would be no incentive for facilities-based competition. Similarly, there would be no incentive for incumbent LECs to continue to invest in and upgrade their networks. Thus, customers would be deprived of the advanced technologies that the authors of the Telecommunications Act envisioned.

Q. You mentioned earlier that parties in UNE proceedings frequently use cost models to estimate the forward-looking economic cost of providing UNEs. Can you illustrate how the investment assumptions in such models affect investment risk and the cost of capital?

A. Yes. Consider four possible cost model scenarios, each with different assumptions regarding the required investment in network facilities to provide UNEs. The first scenario is one in which operating expenses and amounts of investment will be measured on the basis of historical costs. The second scenario is one in which operating expenses and amounts of investment will be based on the forward-looking economic costs of the incumbent LEC, recognizing the existence of the incumbent LEC's current network, the

optimal time path of replacing the current network with the optimal mix of new technologies, and the inherent uncertainties of demand and technology forecasts. The third scenario is similar to scenario two, except that it assumes that the optimal technology mix forecasted for the end of the LEC's planning horizon is installed immediately. Finally, the fourth scenario assumes a world where operating expenses and amounts of investment will be measured on the basis of the forward-looking economic costs of instantaneously building an entirely new local exchange network from scratch, using the most efficient technology for meeting the foreseeable demand for telecommunications services. This scenario ignores the economic consequences of both demand and technology uncertainty, as well as the huge costs of transitioning from the incumbent LEC's current network to an entirely rebuilt new local exchange network.

These four scenarios involve increasing levels of risky investments in new technology and increasingly optimistic assumptions about the costs of transitioning to the new technology. In fact, the fourth scenario assumes that transition costs are zero. The increasing level of investment risk must be recognized when estimating the cost of capital input in the corresponding UNE cost model.

Q. Are you familiar with Verizon VA's UNE cost study?

A. Yes, I am.

Q. Which of the above scenarios best represents Verizon VA's cost study?

A. Verizon VA's forward-looking economic cost study attempts to measure Verizon VA's forward-looking economic cost of providing UNEs, recognizing the existence of its

current network, the replacement of the current network with new technology over a three-year planning horizon, the assumption that the technology mix at the end of the planning horizon will be the hypothetically most efficient mix network wide, and the economic reality that demand forecasts are uncertain. Verizon VA's cost study thus conforms most closely to scenario three.

Q. Why do you consider scenario three to involve more risk than scenario two?

A. The risk of scenario three is greater than the risk of scenario two because scenario three assumes more rapid investments in new technology than are economically optimal. Recall that scenario two recognizes the existence of the incumbent LEC's current network and the optimal time path of replacing the current network with new technologies. Scenario three, on the other hand, assumes that the optimal mix of technologies at the end of the forecast horizon is installed immediately. Thus, scenario three involves a larger bet on uncertain demand and technology forecasts than scenario two, and this risk must be recognized when estimating the cost of capital input in UNE cost models.

Q. Why do you consider scenario four to involve considerably more investment risk than scenario three?

A. Scenario four involves the cost of instantaneously building an entirely new local exchange network from scratch, using the most efficient technology for satisfying the foreseeable demand for telecommunications services. Scenario four ignores the economic effects of demand and technology uncertainty, as well as the very realistic

transition costs of moving from the installed network to the technology embodied in the reconstructed network. A firm building an entirely new local exchange network from scratch is placing a very large bet on the accuracy of its demand and technology forecasts. In reality, a firm building such a network would face the risks that (1) actual demand could be significantly different from forecasted demand; (2) the optimal mix of technology could change as new technology becomes available; (3) the cost of installing and operating the new technology may be greater than expected; and (4) the new technology may not provide the quality and number of services that had been predicted. Furthermore, the investment required to build an entirely new local exchange network from scratch would be enormous, and the investment would be sunk once the network was installed. If actual demand turns out to be different than forecasted, and/or the optimal technology changes, the company could well go bankrupt. The risks of making such a large investment in fixed network technology is even greater given that customers have the option to abandon their use of UNEs and build their own network facilities at any time. Indeed, the Act is intended to encourage that behavior.

Finally, scenario four would require that Verizon update its UNE cost studies every few years to account for the building of another new network. This additional new network, in turn, will strand further investment, including what is today forward-looking investment in the initial instantaneous replacement network.

Q. Can you provide any real world examples of the risks of making a huge sunk investment in an entirely new telecommunications network when demand is uncertain and technological change is rapid?

A. Yes. Over the last several years, companies such as Teligent, Allegiance, Covad, Rythms, Level 3, Qwest, Global Crossing, Metromedia Fiber Network, Williams Communications, McLeodUSA and others have invested billions of dollars in constructing entirely new telecommunications networks both here and abroad. These companies have found that telecommunications demand was not as large as they originally forecast, and advances in technology may soon make some parts of their networks obsolete. As a result, these companies have lost anywhere from 60 percent to 90 percent of their market value as investors have come to realize that these networks were built on overly optimistic demand and cost forecasts. The companies and their investors are now aware of the enormous risk of making high-cost, sunk investments in new telecommunications technology.

Q. Why is it important to consider the risk implications of the forward-looking economic cost standards when the cost of capital is determined by investors in the capital markets?

A. There are at least two reasons for considering the risk implications of this Commission's cost standards. First, there are no publicly-traded companies whose sole business is constructing and operating telecommunications networks for the purpose of offering UNEs. Thus, one must necessarily use cost of capital proxies whose stock is publicly traded, and whose risk approximates the risk of investing in the facilities to provide

UNEs. One must thoroughly understand the risks of investing in UNE facilities in order to properly evaluate the results of applying cost of capital methodologies to these proxy companies.

Second, the cost of capital obviously depends on the risk of the economic environment assumed in the UNE cost study. If one develops a UNE cost model based on a more risky economic environment, then the analyst must include this higher risk in the estimate of the cost of capital input for this cost model to be consistent. If the analyst does not include the higher risk in estimating the cost of capital input, the results of the economic cost study will be economically meaningless.

Q. What do you mean when you say that the results of an economic cost study will be economically meaningless if the analyst does not consider the risk of the economic scenario when estimating the cost of capital?

A. I mean that the resulting UNE rates will not provide correct economic signals to either new entrants or incumbent LECs. If a CLEC develops a cost study based on scenario four, for example, but fails to include the higher risk of scenario four in the cost of capital input, then the resulting UNE rates would be significantly less than the cost a new entrant would face in building its own network, even if it is more efficient in building the new network than the incumbent LEC. Thus, there would be no economic incentive for efficient entry.

With respect to the incumbent, a failure to include the higher level of risk of scenario four in the cost of capital input implies that UNE rates would be significantly less than the forward-looking economic cost of providing UNEs. Thus, the LEC would

have no incentive to continue to introduce new technology in the local exchange, and the goal of the Telecommunications Act to bring advanced technology to customers would be thwarted.

Q. Which scenario did you assume when conducting your cost of capital studies?

A. I have estimated the cost of capital under scenario two. Because the cost of capital would be higher in the more risky scenarios three or four, using my cost of capital estimate will understate UNE costs. All other aspects of Verizon VA's cost model are based on the more risky scenario three.

B. RISK IMPLIED BY ACTUAL COMPETITIVE MARKET CONDITIONS

Q. In addition to model assumptions, what are the major factors that affect the risk of investing in the facilities required to provide local exchange service in Virginia?

A. The risk of investing in the facilities required to provide local exchange service in Virginia depends on operating leverage, the level of competition, rapidly changing technology, and the regulatory environment.

Q. What is operating leverage?

A. Operating leverage refers to the relationship between the company's revenues, on the one hand, and the company's fixed and variable costs on the other. The provision of facilities-based telecommunications services is a business that requires a large commitment to fixed costs in relation to variable costs, a situation called high operating leverage. The relatively high degree of fixed costs in the provision of facilities-based

telecommunications service exists because of the average LEC's large investment in fixed assets such as central office, transport, and loop facilities. High operating leverage causes Verizon VA's net income to be highly sensitive to fluctuations in revenues. There is a positive correlation between operating leverage and risk: as operating leverage rises, so does the risk of operation.

Q. Is the current level of local exchange competition relevant?

A. No. The Commission's rules require that forward-looking UNE cost studies *assume* a fully competitive market. However, if the Commission analyzes the level of competition in Virginia, it should look at the forward-looking level of competition over the life of the investment, not the current level of competition.

Q. Are investors primarily concerned with current or expected future competition when they assess the investment risk of Verizon VA?

A. Investors are primarily interested in expected future competition when they assess the current investment risk of Verizon VA because expected future competition is a primary determinant of volatility in the expected returns on their investment.

Q. Can Verizon VA's investment risk be measured by Verizon VA's current share of the local exchange market?

A. No. Remarkable as the growth of CLEC revenues and market share may be, current market share statistics are nonetheless a poor indicator of competitive risks in the local exchange market. An incumbent's current market share reflects its historical position as

the franchised provider of local exchange services in its service territory. The position of the incumbent as the franchised provider has been eliminated. Investors' perception of risk depends on expected future competition, not current competition as reflected in market share.

Q. You noted previously that the cost of capital to be used in Verizon VA's cost studies must be based on the principle of forward-looking economic cost. Is the forward-looking economic cost principle consistent with the use of Verizon VA's current market share as an indicator of investment risk?

A. No. First, the forward-looking economic cost principle is economically relevant only in a competitive market for telecommunications services. Thus, the forward-looking economic cost principle, at its heart, is based on the assumption that the market for local exchange services is fully competitive.

Second, the forward-looking economic cost principle requires a consideration of the level of competition and investment risk over the entire future life of Verizon VA's investment in network facilities. Given the rapid changes in the telecommunications industry and the certainty that competition will increase, Verizon VA's current market share is a poor indicator of future competition and risk.

Q. Are you aware of the state of competition in Virginia?

A. Yes. As Harold West III demonstrates in his testimony and attached report, competition in Virginia is thriving. Verizon VA serves the concentrated and attractive markets in the

state, and CLECs now have access to nearly 90 percent of Verizon VA's lines from approved collocation agreements.

More importantly, the level of competition in Virginia is expanding rapidly. A number of CLECs, such as Cavalier Telephone, are building their own facilities to bypass Verizon VA's network. In addition, as Mr. West explains, Virginia competitors are deploying alternative technologies such as fixed wireless, cable facilities and IP telephony – technology that is intended to completely bypass Verizon VA.

In short, the current and future level of competition in Virginia makes investing in Verizon VA more risky, therefore increasing the forward-looking cost of capital.

Q. How does rapidly changing technology affect the risk of investing in incumbent local exchange companies such as Verizon VA?

A. Rapidly changing technology increases Verizon VA's risk in two ways. First, it threatens Verizon VA's ability to recover the investment cost of its new telecommunications plant. Second, it reduces the cost of entry for competitors. Rapid advances in fiber optics, wireless, and multimedia transmission technologies, for example, have shortened the economic lives of the incumbent LECs' current investments in copper-based facilities and allowed cable TV, interexchange, and wireless companies to compete efficiently to offer local exchange service. Advances in these technologies further threaten the incumbent LECs' heavy investment in landline telecommunications service.

Q. Is Verizon VA able to compete on equal terms with competitors in the local exchange?

A. No. Verizon VA faces a number of disadvantages in its efforts to compete in a fully competitive local exchange market. First, as the incumbent LEC, Verizon VA has the unique obligation to provide telecommunications services to *all* customers, even those whose rates fail to cover the cost of providing service. Telecommunications prices have historically been set to provide subsidies to high-cost customers in low-density geographic areas. Such subsidies are inconsistent with the competitive framework of the Act. Although the Act provides for the Commission and states to implement mechanisms that eliminate the implicit subsidies that have previously financed the provision of basic local telecommunications service, those implicit subsidies have not yet been eliminated. In truly competitive markets, there are no sources to subsidize prices that are lower than cost. Investors are concerned that the universal service support mechanisms that will be put in place may not be sufficient to balance the incumbent LEC's obligation to continue to provide service in high-cost areas. Competitors, in stark contrast, are free to serve only the most profitable markets.

Second, Verizon VA has the unique obligation to make significant investments in the technology and software needed to provide unbundled network elements to competitors. Verizon VA's competitors, however, have announced their intention to develop their own facilities for providing local exchange service. Thus, Verizon VA faces the considerable risk that its investments in the technology and software needed to provide unbundled network elements to competitors will not be recovered, and is therefore at a cost disadvantage relative to its competitors.

Third, Verizon VA has the unique obligation to share the benefits of network investments with competitors. When Verizon VA invests to upgrade the technology in its network, Verizon VA must share the benefits of this investment with competitors through resale and through leasing of unbundled network elements. However, when Verizon VA's competitors invest to upgrade the technology in their networks, Verizon VA receives no benefit from the CLECs' investments because Verizon VA's competitors are not required to unbundle their networks. For example, if AT&T is able to provide a complete package of video, Internet, and voice services from its investments in TCI and MediaOne, AT&T will have a significant competitive advantage compared to Verizon VA, who is unable to offer such bundled services. However, when Verizon VA enhances the local portion of its service offerings through upgrades of its network, it is required to share these benefits with all competitors, including AT&T.

Q. How does regulation affect the risk of Verizon VA?

A. Since regulation constrains Verizon VA's activities more than those of its competitors, it impairs Verizon VA's ability to compete on the same terms as its competitors, thereby increasing the risk of investing in Verizon VA and thus increasing Verizon VA's cost of capital.

Q. Is the risk of providing unbundled network elements greater than the risk of providing local exchange service in the current regulatory environment?

A. Yes. In their eagerness to promote competition for local exchange service at the residential level, regulators have generally set rates for unbundled network elements

based on forward-looking economic cost studies that include: (1) aggressive assumptions about the expenses and amount of investment required to build a new telecommunications network using the most efficient technology currently available; and (2) conservative estimates of the appropriate rate of depreciation and cost of capital for that forward-looking network. As a result of these contradictory approaches to estimating these four components of the forward-looking economic cost of providing unbundled network elements (that is, expenses, investment, cost of capital, and depreciation), local exchange carriers such as Verizon VA have been required to lease unbundled network elements at rates that are below the cost of providing these elements in a competitive environment. Thus, the risk of providing unbundled network elements has exceeded the risk of providing local exchange service.

Furthermore, the provision of unbundled network elements presents its own unique risk. Verizon VA is required to provide unbundled network elements primarily to facilitate its competitors' entry into the market. Those competitors will use unbundled network elements for short periods until it becomes economical for them to build their own networks, and abandon their use of Verizon VA's network. Verizon VA is essentially facilitating the movement of business off its network, which presents a significant additional risk. In addition, Verizon VA receives only a single revenue stream from the provision of unbundled network elements. By contrast, in the provision of local exchange service, Verizon VA can compete to provide multiple services over the same line, and hence receive multiple revenue streams. Thus, the risk of providing unbundled network elements clearly exceeds the risk of providing local exchange service.

Q. Have you considered the potential impact of long-term commitments to take and pay for unbundled network elements on the risk of investing in the facilities required to provide unbundled network elements?

A. Yes. As noted above, Verizon's competitors may choose at any time to discontinue purchasing UNEs from Verizon. Long-term commitments to take and pay for unbundled network elements, in theory, could reduce the risk of Verizon VA's forward-looking investment in facilities to provide unbundled network elements. However, the key rates to be established in this proceeding are quoted at a price per month, or per minute of use. A competing carrier may choose not to use Verizon VA's facilities, or it may choose to use these facilities for one month at a time. Thus, while Verizon VA is required to provide other carriers with unbundled network elements, competitors are under no obligation to use Verizon VA's elements for any specific period of time. In short, there are no long-term commitments to take and pay for unbundled network elements that might reduce the risk of Verizon VA's investment in the facilities and software to provide interconnection and unbundled network elements.

Q. How does the forward-looking risk of investing in the facilities required to provide unbundled network elements compare to the forward-looking risk of investing in the S&P Industrials?

A. The forward-looking risk of investing in the facilities required to provide unbundled network elements in Virginia is at least as great as the forward-looking risk of investing in the S&P Industrials.

Q. Why do you believe that the risk of investing in the facilities required to provide unbundled network elements in Virginia is at least as great as the forward-looking risk of investing in the S&P Industrials?

A. As I noted above, the risk of investing in the facilities to provide unbundled network elements depends on operating leverage, the degree of competition, rapidly changing technology, and the regulatory environment. The degree of operating leverage required to provide facilities-based telecommunications services far exceeds the average degree of operating leverage required to provide the goods and services offered by companies in the S&P Industrials. Telecommunications is also a high technology business that is particularly sensitive to the risks of rapidly changing technology. Furthermore, the regulatory environment has placed restrictions on incumbents in their ability to compete on equal terms with their competitors. These three factors—high operating leverage, rapidly changing technology, and the regulatory environment—tend to make the risk of investing in the facilities required to provide unbundled network elements greater than the risk of investing in the S&P Industrials.

The only factor that might reduce the risk of investing in the facilities required to provide unbundled network elements is the level of competition. However, this Commission's cost study principles require that cost studies "replicate . . . the conditions of a competitive market" for unbundled network elements. In addition, the level of competition for unbundled network elements is increasing rapidly. Taken as a whole, my analysis of the factors affecting the risk of investing in the facilities required to provide unbundled network elements causes me to believe that this risk is at least as great as the risk of investing in the S&P Industrials.

IV. ESTIMATE OF THE WEIGHTED AVERAGE COST OF CAPITAL FOR USE IN VERIZON VA'S FORWARD-LOOKING COST STUDIES (JDPL ISSUES II-1-A; II-1-C; II-2-A; II-2-C)

Q. How did you calculate the weighted average cost of capital that you recommend for use in Verizon VA's forward-looking cost studies?

A. I calculated the weighted average cost of capital to be used in Verizon VA's forward-looking cost studies by analyzing the market-based percentages of debt and equity in the capital structures of competitive firms, the market cost of debt, and the market-required rate of return on an equity investment in competitive firms of comparable risk.

A. TARGET CAPITAL STRUCTURE

Q. How did you determine an appropriate target capital structure for use in Verizon VA's forward-looking cost studies?

A. To determine an appropriate target capital structure for use in Verizon VA's forward-looking cost studies, I examined capital structure data for both my proxy group of S&P Industrials and a group of telecommunications companies with incumbent local exchange subsidiaries. I examined the most current available data for these companies, and I also reviewed data for the past five years. In all periods, the average market value capital structure for these companies contains no more than 25% debt, and no less than 75% equity.

Q. What are the average market value capital structures of the S&P Industrials and the telecommunications companies with incumbent local exchange operations?

A. Table 1 below shows the average year-end market value capital structures of the S&P Industrials and the telecommunications companies for the five-year period 1996 through

2000. These data show that both groups, on average, have at least 75% equity (and generally have more than 75% equity) in their capital structures.

Table 1

Capital Structure of the S&P Industrials
and Telecommunications Companies at Year End
($ in Millions)

	S&P Industrials			Telecom Companies		
	Market Value	Total Debt	Percent Equity	Market Value	Total Debt	Percent Equity
1996	1,700,587	285,381	85.6%	107,320	28,004	79.3%
1997	2,289,166	323.858	87.6%	204,385	50,221	80.3%
1998	2,863,543	353,205	89.0%	308,876	53,124	85.3%
1999	3,052,212	405,374	88.3%	381,874	68,495	84.8%
2000	3,041,722	469,285	86.6%	398,381	111,479	78.1%
Total	12,947,231	1,837,104	87.6%	1,400,837	311,324	81.8%

Q. Based on your review of these data, what is your recommended target market value capital structure for use in Verizon VA's forward-looking cost studies?

A. Based on my examination of these data, I recommend that a target market value capital structure containing 25% debt and 75% equity be used to calculate Verizon VA's weighted average cost of capital.

B. COST OF DEBT

Q. How did you measure the market cost of debt investments?

A. I used the 7.55% average yield to maturity on Moody's A-rated industrial bonds for March 2001, as reported by Moody's Investors Service. This estimate is conservative because it does not include the flotation costs that must be paid to issue the debt securities required to finance the building of local exchange facilities on a forward-looking basis.

C. COST OF EQUITY

Q. How did you measure the market cost of an equity investment in Verizon VA?

A. I applied the DCF Model to the S&P Industrials.

Q. Why did you apply the DCF model to the S&P Industrials?

A. A proper definition of the cost of capital for use in Verizon VA's forward-looking cost studies is based on the assumption that the market for local exchange services is competitive. As previously noted, this Commission stated in the *Local Competition Order* that it sought to establish UNE pricing rules that simulate conditions in a competitive marketplace. However, at the present time, there are no publicly-traded companies that have built telecommunications networks solely for the purpose of providing unbundled network elements in a competitive market. Since the S&P Industrials are a well-known sample of publicly traded competitive companies whose risk, on average, approximates the risk the incumbent LECs actually face in providing telecommunications services in a competitive market, I believe the S&P Industrial group is a conservative proxy for the risks of investing in the facilities required to provide local exchange services on a forward-looking basis.

Q. Does the S&P Industrial group face the same risk as a company building a new telecommunications network?

A. No. The S&P Industrial group certainly faces less risk than a company building an entirely new telecommunications network for providing UNEs, using the most efficient technology to satisfy the foreseeable demand for telecommunications service. A better proxy group for this latter company would include such companies as Teligent,

Allegiance, Covad, Rythms, Metromedia Fiber Network, Level 3, Qwest, Global Crossing, Metromedia Fiber Network, The Williams Companies, and McLeodUSA. My recommended cost of capital would be many times higher if I looked at companies that were building entirely new networks to provide UNEs.

Q. What DCF result did you obtain from your application of the DCF model to the S&P Industrials?

A. As shown in Attachment A, I obtained a market-weighted average DCF cost of equity of 14.75% for the S&P Industrials.

Q. In addition to your DCF results for the S&P Industrials, have you also calculated DCF results for a group of telecommunications companies that provide local exchange service?

A. Yes, I have. As shown in Attachment B, the average cost of equity for my group of telecommunications companies that provide local exchange service is 15.52%.

D. WEIGHTED AVERAGE COST OF CAPITAL

Q. What is your estimate of Verizon VA's overall weighted average cost of capital?

A. I estimate Verizon VA's overall weighted average cost of capital to be 12.95%. This estimate is based on a 7.55% market cost of debt, a target market value capital structure containing 25% debt and 75% equity, and a cost of equity of 14.75% (see Table 2).

Table 2

Weighted Average Cost of Capital Using 25/75 Capital Structure

Source of Capital	Cost Rate	Percent	Weighted Cost
Debt	7.55%	25.00%	1.89%
Equity	14.75%	75.00%	11.06%
WACC			12.95%

Q. On the basis of your cost of capital studies, what is your conclusion regarding the reasonableness of the 12.95% weighted average cost of capital Verizon VA used in its forward-looking cost studies?

A. I conclude that 12.95% is a conservative estimate of the weighted average cost of capital that should be used in Verizon VA's forward-looking studies of the cost of providing unbundled network elements and interconnection.

Q. Does this conclude your testimony?

A. Yes, it does.

Declaration of James Vander Weide

I declare under penalty of perjury that the foregoing is true and correct. Executed this 30th day of July, 2001.

James Vander Weide

James Vander Weide